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The Trade and Ethnobiological Use of Chimpanzee Body Parts in Guinea-Bissau: *Implications for Conservation*

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Introduction

Guinea-Bissau represents the western-most limit of the endangered West African Chimpanzee *Pan troglodytes verus* (Sousa *et al.,* 2005). During the 1980s, Chimpanzees were erroneously considered to be extinct in the country due to a total absence of information owing largely to political and civil unrest (Lee *et al.,* 1988). In 1994, a preliminary survey was conducted and the presence of Chimpanzees was reconfirmed (Gippoliti and Dell' Omo, 1995; 1996). More recently, research has been carried out in co-operation with national and local authorities, establishing a system for the systematic monitoring and management of this great ape (Casanova and Sousa, 2007). Within the country, Chimpanzees are distributed across the south of the Corubal River. Their presence is confirmed in two protected areas—Cantanhez National Park (CNP) and Cufada Lagoons Natural Park (CLNP) in the southwestern region—and in the eastern region of Boé (Casanova and Sousa 2007; Brugière *et al.*, 2009).

Due to high levels of exploitation, loss of habitat and habitat quality as a result of human activities, this subspecies is estimated to have experienced a significant population reduction in the past 20 to 30 years (IUCN, 2011). However, no recent data are available to allow for an estimation of rates of decline (IUCN, 2011). The most recent figures available, from 1996 (Gippoliti *et al.*, 2003), estimate that the number of Chimpanzees in Guinea-Bissau ranges from between 600 and 1000 individuals. It is estimated that Chimpanzee density in the southern area of CNP is of 2.34 nest builders/km^2 in a total area of 17.225 km^2, corresponding to 40 individuals (Sousa *et al.,* 2011), while in the neighbouring area east of Gadamael, just outside the CNP area, this value decreases to 0.89 nest builders/km^2 in a total area of 36.513 km^2, which corresponds to 33 individuals (Sousa, 2009). However, the exact number of individuals and communities for the whole CNP and the rest of the country remains unclear; with the aid of a molecular census, however, it will be possible to infer its effective population size (Sá *et al.,* 2009).

Anthropogenic disturbances such as habitat loss and fragmentation (e.g. logging activities and shifting land occupation for the purposes of agriculture and food production, e.g. cashew nuts), the hunting of infant animals for the pet trade, and casual deaths from crop raiding allied to extrinsic factors such as disease, are the main threats, not only to Chimpanzees but to all non-human primates in Guinea-Bissau (Gippoliti *et al.,* 2003; Casanova and Sousa, 2007; Brugière *et al.,* 2009). The species is classified by IUCN as Endangered, and listed in CITES Appendix I, and is also protected in Guinea-Bissau. Even though most primate species in Guinea-Bissau are traded for meat consumption, there is no evidence that this is the case for Chimpanzees (Minhos *et al.,* in prep.).

This paper reports on the use and trade of Chimpanzee body parts in Guinea-Bissau for traditional practices (e.g. for nutritional, medicinal or ritual purposes, or "animistic myths"). Informal interviews were conducted and observations made with a view to providing insight into how these human traditions and myths might pose an additional threat.

Methods

Seven visits, of approximately four hours each, were made to Bandim market, the largest market in Bissau, the capital, during two weeks in September 2008 and a similar period in June 2010. Some 10–15 men were found to be offering wild animal body parts for sale (e.g. skin, bones, teeth, horns and scales). Where possible, morphological identification of the specimens viewed was made and photographs taken.

An ethnoprimatological approach (i.e. the study of human and non-human primate interactions) aims to understand the incorporation of non-human primates into folklore, myths, the hunting of non-human primates for food, keeping non-human primates as pets, indigenous knowledge of non-human primate behaviour, among others (Wolfe and Fuentes, 2007; Fuentes and Hockings, 2010). In this study, the authors were interested in understanding and placing into context the social inclusion of Chimpanzee body parts for human traditional practices using informal interviews and ethnographic observations, although not enough data were collected to provide an in-depth analysis for such an approach.

Most of the vendors encountered were male. Five urban vendors in Bandim market and 17 rural informants in villages in the CNP and the Boé region were informally interviewed following an unstructured script, in order to document the geographical origin and use of Chimpanzee body parts, prices and the scale of the trade, i.e. whether at a national, regional, or transnational level. Direct observations of the trade were conducted in the market

1. Leopard *Panthera pardus* (1a complete).
   CITES Appendix I/IUCN Near Threatened;
2. Chimpanzee *Pan troglodytes verus*.
   CITES Appendix I/IUCN Endangered;
3. Nile Crocodile *Crocodylus niloticus*.
   CITES Appendix I/II/IUCN Lower Risk/Least Concern.
4. Guinea Baboon *Papio papio*.
   CITES Appendix II/IUCN Near Threatened.
5. Possibly Lion *Panthera leo*.
   CITES I/IUCN Vulnerable.
6. Possibly African Civet *Civettictis civetta*.
   CITES Appendix III/IUCN Least Concern.
7. Antelope horns (species not identified).

Fig. 1. All animal-derived products for human traditional purposes in Bandim market, Bissau, Guinea-Bissau.

and field notes were taken. Informants were assured that the purpose of the work was not to condemn or report their practices to the local authorities. Every observation heard and/or seen was recorded and notes/interviews organized into social demographic categories (e.g. urban traders, local villagers, gender, ethnic group). Only information relevant to the research topic was assigned to these categories (Rubin and Rubin, 1995).

Only pieces of animal skins were seen for sale during the surveys (which could have derived from one or more specimens). As the vendors were reluctant to answer questions related to the animal numbers involved in the trade, it was not possible to estimate the number of skins being offered for sale for each species recorded. This paper therefore focuses on the morphological identification of the species and not to the number of skins traded.

Results and Discussion

Traded species

During visits to Bandim market, morphologically identified dried Chimpanzee skins were found being sold for traditional medicinal purposes. Additionally, dried skins from Temminck's Red Colobus monkeys *Procolobus badius temminckii*, Guinea Baboons *Papio papio* and Olive Baboons *Papio anubis* were also found. The authors also detected trade in dried skins of several non-primate species such as Leopard *Panthera pardus*, Nile Crocodile *Crocodylus niloticus*, African Civet *Civettictis civetta*, elephant *Loxodonta* sp., hare *Lepus* sp., African Buffalo *Syncerus caffer*, Spotted Hyaena *Crocuta crocuta* and several species of antelopes, snakes and lizards, as well as skins alleged to be of Wild Dog *Lycaon pictus* and Lion *Panthera leo* (Fig. 1). Other animal body parts observed included bones, Crested Porcupine *Hystrix cristata* spines, teeth, antelope horns, pangolin *Manis* sp. scales, mollusc shells, fish bones and feathers. Morphologically specific identification was not possible in most cases due to the similarity of those body parts to other species, as well as to their condition. A few sellers mentioned that some of the bones being offered for sale were from primates.

All the species mentioned above are reported as occurring in Guinea Bissau except for Olive Baboons, whose western limit of distribution is reported to be in Mali and the Republic of Guinea (IUCN, 2011). The Olive Baboon skin seen was morphologically quite different to the Guinea baboon skins found at the market. While Guinea Baboon skins present red/brownish coloration, the Olive Baboon skin had a green hue, typical of what has been described for the subspecies (Groves, 2001).

Costs, origin and scale

Interviews with urban traders revealed that the cost of a piece of Chimpanzee skin was relatively high, ranging from XOF1500 (CFA Francs) to XOF90 000 (USD2.9 to USD173.96, based on an exchange rate in 2008 of XOF460.77 to USD1). The average monthly wage in 2008 was XOF40 000 (approximately USD88.00) (UNDP, 2010).

All urban vendors reported that the Chimpanzee and other animal body parts (apart from the elephant hide seen) originated from the "southern part", and frequently mentioned the regions of Cantanhez and Gabú specifically. Vendors considered the "southern part" every location south of Bissau. The authors were told that the elephant hide had come from Senegal. According to Blanc *et al.,* 2007, at least one, and at most 10 elephants remain in Senegal. Most vendors said that consumers were of both sexes, different ethnic groups and social status.

It was apparent to the authors that witchdoctors are not the only people to buy animal-derived products for traditional medicine or protection fetishes. For example, according to statements from three vendors:

"All sort of people buy. Men and women, poor or rich… Fulas, Pepel, Balanta, even Europeans. Every kind. Not only djamba kuss [witchdoctors] to please the irans [magical and religious entities]."

According to Robillard, *in litt.* to TRAFFIC, July 2011, it is common practice in Africa for people who are unwell to buy their own products based on a list provided by the traditional doctor. See also Marshall (1998).

Two of the vendors also mentioned that individuals from neighbouring countries such as Senegal, Guinea or Gambia are involved in the trade within the country: *"Other foreigners also buy and sell their own plants, shells or skins"*.

Symbolic and medicinal use

Most male informants in rural CNP and Boé villages associated the use of Chimpanzee-derived products with the needs of women, as revealed by one elder Fula respondent in Béli, Boé:

"Dári [chimpanzee] is mezinho [traditional medicine] of women."

Three Balanta women in CNP confirmed that Chimpanzee skin is used to: *"prepare a cleansing mixture against hideousness when they are pregnant or their children are still babies in the event they see a lonely chimpanzee cross their way"*. Likewise, another woman said that *"the leaves of the nest where a menstruating female chimpanzee sleeps can be applied to heal mental problems"*.

One informant admitted that he uses a stitched amulet made of chimpanzee body parts to help provide awareness to protect him and his friends while in the bush (Rui Sá, pers. obs., 2008).

Guinea-Bissau in the context of previous studies

One possible explanation for the lack of information on magic practices and traditional medicines using animal body parts in Guinea-Bissau is the difficulty in collecting information on such an undisclosed subject, as well as both a lack of interest and in-depth study of such practices. As a result, the authors' observations are opportunistic. However, the use of animals' body parts for medicinal purposes could seriously threaten the biodiversity of Guinea-Bissau and, in particular, constitutes an additional and significant threat to Chimpanzee populations already menaced by habitat loss and fragmentation, the pet trade and crop-raiding conflicts. Therefore, this phenomenon deserves to be thoroughly investigated (Cá, 2008).

Although not previously reported for Guinea-Bissau, the use of non-human primate body parts in traditional medicine is not unusual elsewhere in the world (Alves *et al.,* 2010; Leypey and Fomine, 2010). In a recent review, Alves *et al.* (2010) reported the use of 101 species of primates in folk/magic-religious practices, most frequently in Africa, Latin America and Asia. Although Cercopithecidae species are the most affected, Chimpanzees are also referred to as a remedy for diseases and for use in folk medicine (Alves *et al.,* 2010). In Nigeria, Mali, Sierra Leone, Congo and Guinea, Chimpanzee body parts are used to cure male impotency, epilepsy, bone fractures and infertility in women (Dedeke and Aboyami, 2006). In Cameroon, the Bakweri people believe that by using the liquid derived from boiled Chimpanzee bones, the bones of children or babies will become stronger (Leypey and Fomine, 2010). Additionally, in the forested areas, people use Chimpanzee body parts in birth and circumcision rituals (Mallart Guimera, 1981). The Yoruba people of south-western Nigeria believe in the magical properties of Chimpanzee body parts in appeasing witches and fortune tellers (Dedeke and Aboyami, 2006). However, it is not easy for people to obtain these remedies or to gain access to these animals. In Central Africa, the consumption of Chimpanzee meat is taboo for young men, pregnant women and children (Robillard, *in litt.* to TRAFFIC, July 2011).

The presence in Bandim market of the skin of an Olive Baboon suggests a foreign origin for some of the animal body parts being offered for sale. While the distribution area for this species (*Papio anubis*) includes neighbouring Guinea and Mali, it does not occur in Guinea-Bissau (Soewu, 2008). The Guinea Baboon *Papio papio* is the only baboon species reported and observed in the country (IUCN, 2011). There are striking differences in morphology between both baboon species (namely coat coloration (Groves, 2001)), which enables a distinction to be made based on their skins. Furthermore, in Colobane and Boucotte markets in Senegal (in Dakar and Ziguinchor, respectively), several species of reptiles and mammals, including primate species (data not shown) were found in trade for use in traditional medicinal practices and/or magic ceremonies (Fernando Sousa, pers. obs., 2008). According to information provided by the sellers, those animal body parts were brought from Niger, Nigeria, Ivory Coast and Mali. Chimpanzee skins were also found in these Senegalese markets (Fernando Sousa, pers. obs., 2008). The respondents pinpointed Cassamance (on the border between Senegal and Guinea-Bissau) as the putative origin of Chimpanzee skins at Boucotte market, and Guinea-Bissau and the Republic of Guinea as the possible origin of the Chimpanzee skins being sold at Colobane market. The possibility that the Chimpanzee skins found in Bandim market could also be from the Republic of Guinea cannot be excluded since sellers mentioned the "south" as the origin but not specifically the south of Guinea-Bissau.

Implications for conservation

The suggested transnational interest for Guinea-Bissau Chimpanzee skins may constitute an even bigger threat for the conservation of this population. Since Chimpanzee populations are declining in West African countries (IUCN, 2010), foreign hunters could be attracted to Guinea-Bissau and the hunting of Chimpanzees could therefore increase in the near future. Biodiversity management authorities in Guinea-Bissau (*IBAP* and *Direcção Geral de Florestas e Fauna*) have introduced new laws to regulate the trade in wild meat (e.g. recently, the hunting of primates throughout the country was prohibited (Anon., 2011). However, the lack of resources and lack of awareness of management authorities and politicians is hindering law enforcement in the country. At the international level, conservation agencies should re-examine their strategies to mitigate this trade, and, at the national level, specific programmes should be designed and applied to empower all actors involved (e.g.

park rangers, Customs officers, the military, police, etc.), complemented at the same time by provision of environmental education for the local communities.

Further work by the authors will include the molecular determination of the origin of the skins observed in the markets and of the species involved. This will assist in evaluating the scale of the trade. Finally, an ethnographic study specifically centred on the use of non-human primate body parts by traditional medicine using more in-depth techniques, such as participant observation or long-term observation, will allow the authors to draw up possible differences in the use of distinct animal parts and determine how such practices are disseminated.

Acknowledgements

The authors are enormously thankful to the Institute of Biodiversity and Protected Areas (IBAP) in Guinea-Bissau for facilitating their research in Guinea-Bissau, and for providing logistical support. Particular thanks go to Milza Nanqui whose assistance facilitated the gathering of information at the market in Bissau and to all the informants for agreeing to and trusting the authors to talk about sensitive issues. The authors are also very grateful to M.W. Bruford, C. Sousa and C. Casanova for their helpful discussion and comments that improved the quality of the manuscript. The authors would also like to thank David Greer, WWF's African Great Apes Programme Co-ordinator; Marine Robillard, expert in environmental anthropology, consultant for AnthropoLinks and research associate at the National Museum of Natural History of Paris; and an anonymous reviewer, for their helpful comments on an early draft.

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